

GSPH-EPA Town Meeting

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The Center for Healthy Aging at the University of Pittsburgh is one of only two CDC Prevention Research Centers which focuses primarily on healthy aging. The goal of this center is to maximize the quality of life by reducing morbidity and disability among older citizens. The majority of older individuals age 65+ are functional with minimal disability. They are, however, a very high risk population because of a very high prevalence of subclinical disease, especially cardiovascular disease. We have recently shown that among representative samples from four communities in the U.S. that 25% of nonblack women, 28% of black women, approximately 40% of nonblack men and 50% of black men age 65-69 will have either a heart attack, stroke or develop congestive heart failure over the next 10 years, i.e. before they are age 75. These are extraordinarily high rates and result in substantial morbidity, disability and major health care cost. In fact, the cost of treatment of CVD among these elderly accounts for a substantial proportion of Medicare costs and are the primary driving force for the continued high Medicare costs and the threat of insolvency of the Medicare program. We know a great deal about how to prevent CVD and stroke among these older individuals. Unfortunately, the application of good preventive medicine is extremely poor within most communities. The high prevalence of 'subclinical vascular disease' and 'clinical vascular disease' in these older populations makes them extremely vulnerable to factors that may precipitate the

risk of a clinical event such as a heart attack, stroke or CHF. Even a small risk among these older individuals results in a substantial increase in the number of clinical cases, morbidity and disability. In recent years, there has been increasing evidence that small particulate pollution may contribute to the precipitation of CHF and myocardial infarction, especially among these older individuals.

Continued reduction in exposure to ambient air pollution, especially fine particulate pollution, could have a very positive effect on reduction of risk of coronary heart disease and CHF in these vulnerable, elderly populations. Further research is badly needed among these elderly populations to better determine the relationships between air pollution and the precipitation of clinical events.

Similarly, the incidence of dementia and other neurodegenerative diseases are extremely high among this older age group. In our Cardiovascular Health Study the incidence of dementia was about 35/1000/year in the white population and about 56/1000/year in the black population. There is also a high incidence of Parkinson's disease and amyotrophic lateral sclerosis (ALS) in these older age groups, although certainly not nearly as high as that for dementia. We do not know the specific causes of these diseases nor the contribution of environmental exposures. There may be a very long incubation period between the environmental exposure and the subsequent incidence of disease.

There are also likely very susceptible populations such as the strong association between ApoE₄ and risks of Alzheimer's disease. New technology,

such as magnetic resonance imaging of the brain and PET scanning, makes it possible to detect early subclinical changes in the brain which may be more closely related to the environmental exposures. In recent years, there has been considerable interest in the relationship between exposures to heavy metals such as lead and mercury and risk of cognitive decline and dementia. A paper presented from the Hawaii Research Group at a recent neurology meeting suggested an association between consumption of fruits and fruit juices and subsequent risk of Parkinson's disease. The attributed this association to the possible low levels of pesticide residues in fruits that could contribute to the development of Parkinson's disease over many years.

A recent report from the Paquid Study in France suggested that exposure to aluminum in drinking water was associated with about a two-fold increased risk of dementia. Unique environmental exposures in Guam were associated with the epidemic of ALS. We are almost certain to find environmental agents which contribute to neurotoxicity and either to the development or to the progression of Alzheimer's disease and other neurological diseases of the elderly. Given the high prevalence of these diseases, the increasing age of the U.S. population and the lack of effective therapies further research to try and identify these potential specific environmental exposures in the elderly should be a high priority.

The prevention of morbidity and disability in older populations must be a high priority for a health research agenda. The alternative is an ever increasing

number of individuals in the population with morbidity and disability and high health care cost which will ultimately bankrupt the health care system.